WHAT IS CLAIMED IS:

1. A communications system, comprising:

a base station configured to output a first digital in phase and quadrature phase (I/Q) signal;

an optical connecting unit configured to convert the first digital I/Q signal into an optical signal and output the converted optical signal through an optical cable; and

an optical base station coupled to receive the optical signal through the optical cable and configured to convert the optical signal into a second digital I/Q signal, and convert the second digital I/Q signal into a first RF signal for transmission.

2. The system of claim 1, wherein the optical base station comprises:

an optical transceiver configured to convert the optical signal received through the optical cable into the second digital I/Q signal;

a multiplexer/demultiplexer unit configured to demultiplex the second digital I/Q signal outputted from the optical transceiver;

an up-converter configured to convert and filter an output signal of the multiplexer/demultiplexer unit and output the first RF signal;

a High Power Amplifier (HPA) configured to amplify the first RF signal outputted by the up-converter; and

a duplexer configured to filter the amplified first RF signal and provide the filtered output to an antenna.

3. The system of claim 2, wherein the optical base station further comprises:

a plurality of duplexers configured to remove a noise component of a second RF signal collected by a corresponding plurality of antennas;

a plurality of Low Noise Amplifiers (LNAs) configured to amplify the second RF signals outputted from the plurality of duplexers; and

a plurality of down-converter units configured to band-pass filter, down-convert and analog to digital convert, the second RF signals outputted from the plurality of LNAs.

4. The system of claim 3, wherein the optical base station further comprises a clock unit configured to provide a synchronous signal to the multiplexer/demultiplexer unit.

5. The system of claim 4, wherein the optical base station further comprises a reference clock unit configured to provide the synchronous signal of the clock unit to the up-converter unit and the plurality of down-converter units.

6. The system of claim 2, wherein the antenna comprises a diversity antenna.

7. The system of claim 1, wherein the optical connecting unit comprises:

a multiplexer/demultiplexer configured to multiplex the first digital I/Q signal;

an optical transceiver configured to convert an output signal of the multiplexer/demultiplexer into the optical signal and transmit the optical signal through the optical cable to the optical base station; and

a clock unit configured to provide a synchronous signal to the multiplexer/demultiplexer unit.

8. The system of claim 7, wherein the optical transceiver is further configured to receive an optical signal from the optical base station and convert the received optical signal into a third digital I/Q signal to be transmitted to the base station.

9. The system of claim 1, wherein the optical connecting unit receives the first digital I/Q signal from a channel card of the base station.

10. The system of claim 1, wherein the optical base station and the optical connecting unit are digital interface-based devices.

11. A signal transmitting method for a communications system, comprising:

converting a first digital I/Q signal outputted from a base station into an optical signal;

transmitting the optical signal through an optical cable to an optical base station;

converting the optical signal received through the optical cable into a second digital I/Q signal;

converting the second digital I/Q signal into a RF signal; and

transmitting the RF signal through an antenna.

12. The method of claim 11, wherein converting the second digital I/Q signal to a RF signal comprises:

demultiplexing the second digital I/Q signal;

converting the demultiplexed signal to an analog signal;

band pass filtering the analog signal to generate the RF signal;

high-power amplifying the RF signal; and

filtering the amplified RF signal.

13. The method of claim 12, wherein demultiplexing is performed in accordance with a synchronous signal.

14. The method of claim 11, wherein converting the first digital I/Q signal to the optical signal comprises multiplexing the first digital I/Q signal.

15. The method of claim 14, wherein multiplexing is performed in accordance with a synchronous signal.

16. The method of claim 11, wherein the antenna comprises a diversity antenna.

17. The method of claim 12, further comprising receiving an RF signal through the antenna.

18. A signal receiving method for a communications system, comprising:

receiving an RF signal through an antenna of a first station;

converting the received RF signal to a first digital electronic signal;

converting the first digital electronic signal to a digital optical signal;

transmitting the digital optical signal over an optical link to an optical connecting unit;

converting the digital optical signal to a second digital electronic signal in the optical coupling unit; and

providing the second digital electronic signal from the optical coupling unit to a second station.

19. The method of claim 18, wherein the optical link comprises an optical cable.

20. The method of claim 18, wherein the first station comprises a remote base station and wherein the second station comprises a base station.

21. The method of claim 20, wherein the antenna comprises a diversity antenna.

22. A communications system, comprising:

means for converting a first digital electronic signal outputted from a first station into a first digital optical signal;

means for transmitting the first digital optical signal to a second station;

means for converting the first digital optical signal to a second digital electronic signal;

means for converting the second digital electronic signal to a first RF signal; and

means for transmitting the first RF signal.

23. The system of claim 22, wherein the first digital optical signal is transmitted to the second station using an optical cable.

24. The system of claim 22, further comprising means for amplifying and filtering the first RF signal prior to transmitting.

25. The system of claim 22, further comprising:

means for receiving a second RF signal in the second station;

means for converting the second RF signal to a third digital electronic signal;

means for converting the third digital electronic signal to a second digital optical signal;

means for transmitting the second digital optical signal over the optical link;

means for converting the second digital optical signal to a fourth digital electronic signal; and

means for providing the fourth digital electronic signal to a second station.

26. A signal transmitting method in a communication system, comprising:

converting a digital I/Q signal to an optical signal in an optical connecting unit;

transferring the optical signal over an optical cable to a remote station; and

converting the optical signal into an RF signal for transmission.

27. The method of claim 26, wherein the digital I/Q signal is received from a base station.

28. The method of claim 26, wherein converting the optical signal comprises:

converting the optical signal into an analog signal;

demultiplexing the analog signal;

up converting and filtering the demultiplexed analog signal to generate the RF signal; and

amplifying and filtering the RF signal.

29. The method of claim 26, wherein converting the digital I/Q signal comprises multiplexing the digital I/Q signal and inputting the multiplexed digital I/Q signal into an optical transceiver to generate the optical signal.

30. The method of claim 26, further comprising:

receiving an external RF signal through an antenna coupled to the remote station;

converting the external RF signal to a second optical signal;

transferring the second optical signal to the optical connecting unit; and

converting the second optical signal to a second digital I/Q signal.

31. A communication system, comprising:

an optical connecting unit, configured to receive a first digital I/Q signal and convert the first digital I/Q signal into a first digital optical signal; and

a remote base station, coupled to receive the first digital optical signal and configured to convert the first digital optical signal to a first analog RF signal for transmission.

32. The system of claim 31, wherein the base station is further configured to receive a second RF analog signal and convert the second analog RF signal to a second digital optical signal, and wherein the optical connecting unit is coupled to receive the second digital optical signal and

further configured to convert the second digital optical signal to a second digital I/Q signal for transmission.

33. A communication system, comprising:

an optical connection unit, configured to convert a first digital I/Q signal to a first optical signal and to convert a second optical signal to a second digital I/Q signal; and

a remote base station, coupled to receive the first optical signal, and configured to convert the first optical signal to a third digital I/Q signal, convert the third digital I/Q signal to a first RF signal, transmit the first RF signal, receive a second RF signal, convert the second RF signal to a fourth digital I/Q signal, and convert the fourth digital I/Q signal to the second optical signal.

34. The system of claim 33, further comprising an optical link coupling the optical connecting unit to the remote base station.

35. The system of claim 33, wherein the remote base station comprises a diversity antenna.

36. The system of claim 33, wherein the optical connecting unit comprises a multiplexer configured to multiplex the first digital I/Q signal and a demultiplexer configured to demultiplex the second digital I/Q signal, and wherein the remote base station comprises a

demultiplexer configured to demultiplex the third digital I/Q signal and a multiplexer configured to multiplex the fourth digital I/Q signal.